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10/684,894	10/14/2003	Cyril Allouche	14XZ129712	4868

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EXAMINER	
MOTSINGER, SEAN T	

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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	**Application No.** 10/684,894	**Applicant(s)** ALLOUCHE ET AL.
	Examiner Sean Motsinger	**Art Unit** 2624

All participants (applicant, applicant's representative, PTO personnel):

(1) *Sean Motsinger*. (3)*Dave Christensen*.

(2) *Jingge Wu*. (4)_____.

Date of Interview: *1/31/2007*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *14, 19, 44 and 46 Proposed amendments (see attached)*.

Identification of prior art discussed: _____.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *We went over the proposed claims and discussed the amendments. Claim 46 was discussed in particular with regard to the 112 second paragraph rejection. Applicnats attorney explained that section of claim 46 at issue to clarify its meaning to the examiner.As the examiner now understands the size of the dynamic range is proportial to mean thickness*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.:	10/684,894	:	Confirmation No.:	4868
Applicant:	Allouche et al.	:	Group Art Unit:	2624
Filed:	October 14, 2003	:	Examiner:	Motsinger, S.
Docket No.:	14XZ129712/GEM-0144	:		

For: METHOD TO DETERMINE THE OPTIMAL PARAMETERS OF A RADIOGRAPHY ACQUISITION

January 28, 2008

Examiner Sean Motsinger
P.O. Box 1450
Alexandria, VA 22313-1450

PROPOSED AMENDMENT UNDER 37 CFR 1.111

Examiner Motsinger:

As we discussed on the phone this morning, we are requesting an interview to review the proposed amendments that are attached hereto. In addition to the proposed amendments, we have also prepared a claim chart, which is also attached, to aid in your review.

Once you know what dates and times you are available, please contact me at 860-286-2929 to confirm when the interview may take place. We look forward to talking with you.

Respectfully submitted,

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PROPOSED AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1 -4 (Canceled)

5. (presently amended) The method according to claim [[3]] 14 wherein the equivalent mean thickness value taken is the mean of equivalent thicknesses corresponding to the pixels of the population of pixels of the reduced histogram, the equivalent thicknesses being tissue thicknesses of the object given by their equivalents in thickness of a plastic material.

6. (presently amended) The method according to claim [[4]] 19 wherein the equivalent mean thickness value taken is the mean of equivalent thicknesses corresponding to the pixels of the population of pixels of the reduced histogram, the equivalent thicknesses being tissue thicknesses of the object given by their equivalents in thickness of a plastic material.

7. (original) The method according to claim 5 wherein:

a. a given number of pixels is subtracted from the population of pixels of the reduced histogram; and

b. the subtracted pixels are those whose equivalent thicknesses are the lowest from the threshold.

8. (original) The method according to claim 6 wherein:

a. a given number of pixels is subtracted from the population of pixels of the reduced histogram; and

b. the subtracted pixels are those whose equivalent thicknesses are the lowest from the threshold.

9. (presently amended) The method according to claim [[3]] 14 wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest.

10. (presently amended) The method according to claim [[5]] 19 wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest.

11. (presently amended) The method according to claim [[6]] 5 wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest.

12. (original) The method according to claim 7 wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest.

13. (original) The method according to claim 8 wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the

parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest.

14. (presently amended) A method to determine parameters of a radiography acquisition comprising:

a. a first test image of an object is acquired under known setting conditions for a radiography installation, wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest;

b. a mean thickness of the object is measured, for these known setting conditions, from the first test image test;

c. the parameters of acquisition are determined from the mean thickness; and

d. a measure is made of the mean thickness from the first test image, where pixels that represent defined regions of the object are eliminated from the first test image;

wherein in order to exclude the pixels, those pixels for which one characteristic in the image is located beyond a threshold are eliminated from the first image, the threshold corresponding to a borderline thickness of interest of the object; and below the borderline thickness, it is assumed that the image is of no interest and mean thickness is computed from a reduced histogram of pixels in which reduced histogram, the eliminated pixels are not present; and,

wherein before the reverse analysis, the thickness is corrected as a function of an arbitrary thickness, a geometry of acquisition of the image and as a function of a

Compton scattering phenomenon that results therefrom according to the following equations:

$$\boxed{ScatterComp = \begin{bmatrix} sa \\ +\left(sb \times EPTthreshold\right) \\ +\left(sc \times \sqrt{SurfaceFdbk} \times 10\right) \\ +\left(sd \times AirGap\right) \\ +\left(se \times kVp\_actual\right) \\ +\left(sf \times AirGap^2\right) \\ +\left(sg \times EPTthreshold \times \sqrt{SurfaceFdbk} \times 10\right) \\ +\left(sh \times EPTthreshold \times AirgGap\right) \\ +\left(si \times EPTthreshold \times kVp\_actual\right) \\ +\left(sj \times \sqrt{SurfaceFdbk} \times 10 \times AirGap\right) \\ +\left(sk \times \sqrt{SurfaceFdbk} \times 10 \times kVp\_actual\right) \\ +\left(sl \times AirGap \times kVp\_actual\right) \end{bmatrix}}$$

$$\boxed{AirGap = SID - IsoDis\tan ce\_\frac{EPTthreshold}{2}}$$

and

wherein:

SID represents a distance from an x-ray source to a detector;

IsoDistance represents a distance from the x-ray source to a lower edge of the object;

EPT Threshold represents an equivalent thickness below which no tissue of interest is present, the equivalent thickness being tissue thickness of the object given by an equivalent in thickness of a plastic material;

SurfaceFdbk represents a surface area of a field of view

KVp_actual represents a voltage with which the x-ray source is energized at a time of test image acquisition; and

Sa through Sl represent coefficients obtained by a regression analysis of measurement of phantoms of known radiological densities.

15. – 18 (canceled)

19. (previously presented) A ~~The~~ method ~~according to claim 9~~ to determine parameters of a radiography acquisition comprising:

a first test image of an object is acquired under known setting conditions for a radiography installation, wherein for the setting of the installation, a pixel threshold is found for the test image by reverse analysis from the parameters for setting the installation, the pixel threshold being, for example, a gray level threshold or a dose threshold which corresponds to a thickness beyond which the tissue regions are deemed to be of no interest;

wherein for the reverse analysis the result of the following equation is computed:

$$\boxed{SFBthreshold = \exp(b12 + W12 \cdot \Phi(W11 \cdot In + b11))}$$

wherein In represent the known conditions of setting of the installation, Φ represents a Tansig function, the values bij and Wij are respectively vectors and matrices, the values bij and Wij by learning, especially by minimization of an error in the computation of the equation for a set of thresholds, SFB threshold, and for a set of varied conditions of setting of the installation.

20. (canceled)

21. (previously presented) The method according to claim 11 wherein for the reverse analysis the result of the following equation is computed:

$$\boxed{SFBthreshold = \exp(b12 + W12 \cdot \Phi(W11 \cdot In + b11))}$$

wherein In represent the known conditions of setting of the installation, Φ represents a Tansig function, the values bij and Wij are respectively vectors and matrices, the values bij and Wij by learning, especially by minimization of an error in the computation of the equation for a set of thresholds, SFB threshold, and for a set of varied conditions of setting of the installation.

22. (previously presented) The method according to claim 12 wherein for the reverse analysis the result of the following equation is computed:

$$\boxed{SFBthreshold = \exp(b12 + W12 \cdot \Phi(W11 \cdot In + b11))}$$

wherein In represent the known conditions of setting of the installation, Φ represents a Tansig function, the values bij and Wij are respectively vectors and matrices, the values bij and Wij by learning, especially by minimization of an error in the computation of the equation for a set of thresholds, SFB threshold, and for a set of varied conditions of setting of the installation.

23. – 29 (canceled)

30. (previously presented) The method according to claim 5 wherein the corresponding to the threshold is a maximum anatomical thickness.

31. (presently amended) The method according to claim [[7]] 6 wherein the thickness corresponding to the threshold is a maximum anatomical thickness.

32-43. (cancelled)

44. (presently amended) An article of manufacture for use with a computer system, the article of manufacture a comprising computer readable medium having computer readable program code means embodied in the medium, the program code means implementing the steps of the method according to claim [[1]] 19.

45. (canceled)

46. (presently amended) A method to determine parameters of a radiography acquisition comprising:

a. a first test image of an object is acquired under known setting conditions for a radiography installation, wherein to make settings for the installation, a dynamic range of a detector of the installation is secured in such a way that the dynamic range corresponds to a difference between the mean thickness of the object and a thickness corresponding to the threshold;

b. a mean thickness of the object is measured, for these known setting conditions, from the first test image test;

c. the parameters of acquisition are determined from the mean thickness; and

d. a measure is made of the mean thickness from the first test image, where pixels that represent defined regions of the object are eliminated from the first test image, wherein in order to exclude the pixels, those pixels for which one characteristic in the image is located beyond a threshold are eliminated from the first image, the threshold corresponding to a borderline thickness of interest of the object; and below the borderline thickness, it is assumed that the image is of no interest and mean thickness is computed from a reduced histogram of pixels in which reduced histogram, the eliminated pixels are not present;

wherein the mean thickness corresponds to a proportion of the dynamic range in terms of gray scale levels of signal and wherein the proportion is one twentieth of the dynamic range.

47. (presently amended) The method according to claim ~~[[1]]~~ [[1]] 19, wherein the defined regions of the object are non-anatomical regions.

48. (previously presented) The method according to claim 47, wherein the non-anatomical regions represent edges of the object.